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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/758,599	01/16/2004	Danny Grant	IMMR-064/00US	5397

22903 7590 10/18/2005

COOLEY GODWARD LLP
ATTN: PATENT GROUP
11951 FREEDOM DRIVE, SUITE 1700
ONE FREEDOM SQUARE- RESTON TOWN CENTER
RESTON, VA 20190-5061

EXAMINER	
LAO, LUN YI	
ART UNIT	**PAPER NUMBER**
2677	

DATE MAILED: 10/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/758,599	GRANT, DANNY	
	Examiner	Art Unit	
	LUN-YI LAO	2677	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-45 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-45 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 6/21/2004.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement filed on June 21, 2004 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document(e.g. Japanese references); each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

Claim Objections

2. The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

Claim 14 is missing. Misnumbered claims 15-46 have been renumbered as claims 14-45.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-22 and 24-45 are rejected under 35 U.S.C. 102(b) as being anticipated by Rosenberg et al(5,959,613).

As to claims 1-22 and 24-46, Rosenberg teaches an apparatus, comprising: a manipulandum being movable between a first position(182) and a second position, the second position being associated with a threshold position(see figures 1-7c; column 13, lines 55-68 and column 14, lines 1-9); a sensor(28) configured to output a position signal associated with a position of the manipulandum; and an actuator, the actuator(30) being configured to apply haptic feedback to the manipulandum based on the position signal, the haptic feedback including a position-based component and a predetermined time-based component(see figures 1-10; column 8, lines 50-68; column 9; column 10, lines 1-13; column 15, lines 10-68; column 16, lines 1-48; column 19, lines 44-68 and column 20, lines 1-28).

As to claim 4, Rosenberg teaches the predetermined time-based component includes a series of time-based waveforms(see figures 4-7C).

As to claim 5, Rosenberg teaches the predetermined time-based component is represented by at least one of: a saw tooth wave, a square wave, a pulse, a

full sine wave and a triangle wave(see figures 4a-5; column 14, lines 45-57; column 15, lines 66-68 and column 16, lines 1-7).

As to claims 6, 20, 22, 24, 26, 27-28, 30, 32 and 33, Rosenberg teaches the haptic feedback being a first haptic feedback, the apparatus further comprising: a biasing element(virtual spring, 186)) configured to bias the manipulandum in the first position, the actuator being configured to apply a second haptic feedback to the manipulandum when the threshold position is surpassed as the manipulandum moves from the second position to the first position(182)(see figures 1-3b; column 13, lines 26-68 and column 14, lines 1-9).

As to claims 7 and 13, Rosenberg teaches the haptic feedback being a first haptic feedback having a first predetermined time-based component, the apparatus further comprising: a biasing element(spring) configured to bias the manipulandum in the first position, the actuator(30) being configured to apply a second haptic feedback having a second predetermined time-based component to the manipulandum when the threshold position is surpassed as the manipulandum moves from the second position to the first position, the first predetermined time-based waveform and the second predetermined time-based waveform being different(see figure 7C and column 19, lines 18-29).

As to claims 8 and 16, Rosenberg teaches the threshold position being a first threshold position, wherein: the manipulandum is moveable from the second position(end of the region 186) to a third position(the beginning of the region 184), the third position being associated with a second threshold position; and the actuator

being configured to apply a second haptic feedback based on a position signal associated with the second threshold position, the second haptic feedback having the position-based component and a second predetermined time-based component(see figures 1-2, 3b; 4-6; column 13, lines 55-68; column 14 and column 15, lines 1-10).

As to claims 9, 17 and 18, Rosenber teaches the threshold position being a first threshold position(182), wherein: the manipulandum is moveable from the second position(the beginning of the region 186) to a third position(the end of the region 186), and from a third position to a fourth position(the beginning of the region 184), the third position being associated with a second threshold position and the fourth position being associated with a third threshold position; and the actuator being configured to apply a second haptic feedback based on a position signal associated with the second threshold position and a third haptic feedback based on a position signal associated with the third threshold position, the second haptic feedback having the position-based component and a predetermined time-based component associated with the third position, the third haptic feedback having the position-based component and a predetermined time-based component associated with the fourth position((see figures 1-2, 3b; 4-6; column 13, lines 55-68; column 14 and column 15, lines 1-10).

As to claims 10-12 and 31, Rosenberg et al the manipulandum is a button on a mouse on a computer mouse and a game controller and a disposed on a communication device(see figures 1-2 and column 1, lines 20-40).

As to claim 14, Rosenberg et al teach a controller(12)(see figures 1-2; column 9, lines 10-68 and column 10, lines 1-13).

As to claim 22, Rosenberg et al teach the predetermine time-based component (square waveform or sinusoidal waveform or triangular waveform) stored within a processor-readable medium in response to a position signal(see figures 4a-6; column 15, lines 59-68 and column 16, lines 1-8).

As to claim 25, Rosenberg et al teach a characteristic of the haptic feedback in response to the velocity of the manipulandum(see figures 3a-5; column 13, lines 7-25; column 14, lines 10-30).

As to claim 29, Rosenberg et al teach a voice-coil type actuator(see column 9, lines 53-57).

As to claims 37 and 41-44, Rosenberg et al teach a manipulandum being rotated from a first position to a second position and the manipulandum has been rotated between a second position and a third posiiton(see figures 1-3b; column 11, lines 61-68; column 12, lines 1-22; column 13, lines 55-68 and column 14, lines 1-17).

As to claims 35 and 38, Rosenberg et al teach a plurality of time based waveforms(square, or sinusoidal or triangular or sawtooth waveforms)(see figures 5-7C).

As to claims 3, 34 and 39, Rosenberg teaches the predetermined time-based component includes a single time-based waveform(see figures 4-7C and column 14, lines 53-64).

As to claim 40, Rosenberg teaches a predetermined time-based waveform having a period of about 1ms to 300ms(about 50ms)(see figures 6-7C and column 16, lines 48-59).

As to claims 2 and 45, Rosenberg teaches the manipulandum is a knob and the position-based component is a detent profile(see figures 2, 4a-6; column 11, lines 18-35; column 14, lines 56; column 15, lines 59-68 and column 16, lines 1-7).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rosenberg(5,959,613) in view of Rosenberg(6,243,078).

Rosenberg(5,959,613) fails to disclose a physical spring.

Rosenberg teaches a force feedback button(16) having a physical spring(see figures 1-2, 4 and column 6, lines 31-68). It would have been obvious to have modified Rosenberg(5,959,613) with the teaching of Rosenberg(6,243,078), since Rosenberg(6,243,078) disclosed a physical spring could be replaced by a virtual spring(see column 8, lines 56-68 and column 9, lines 1-15).

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Gilligan et al(5,374,942) teaches a mouse knob having different displacement threshold.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lun-yi Lao whose telephone number is 571-272-7671. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on 571-272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

October 15, 2005

L. Y. Lao

Lun-yi Lao
Primary Examiner